

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

Claims 1 to 15 (*cancelled*)

16. (*currently amended*) A radiopharmaceutical of the formula:

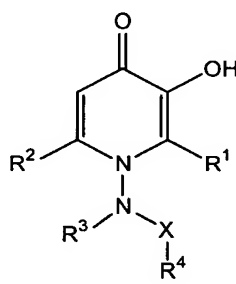


and or pharmaceutically acceptable salt thereof, wherein:

M is a radionuclide selected from: ^{64}Cu , ^{67}Cu , ^{67}Ga , ^{68}Ga , ^{99m}Tc , ^{111}In , ^{90}Y , ^{149}Pr , ^{153}Sm , ^{159}Gd , ^{166}Ho , ^{169}Yb , ^{177}Lu , ^{186}Re , and ^{188}Re ;

C_h is an N-substituted 3-hydroxy-4-pyridinone compound of the formula

(I):



or a pharmaceutically acceptable salt thereof, or prodrug thereof, wherein:

X is selected from the group: CH_2 , $\text{C}(\text{O})$, $\text{C}(\text{S})$, $\text{P}(\text{O})\text{R}^3\text{R}^4$, SO_2 , $\text{C}(=\text{NH})\text{NH}$, $\text{C}(\text{O})\text{NH}$, and $\text{C}(\text{S})\text{NH}$;

R^1 and R^2 are independently selected from: H, $\text{C}_1\text{-C}_{10}$ alkyl substituted with 0-5 R^5 , $\text{C}_2\text{-C}_{10}$ alkenyl substituted with 0-5 R^5 , aryl substituted with 0-3 R^5 , and heteroaryl substituted with 0-3 R^5 ;

R^3 and R^4 are independently selected from: $\text{C}_1\text{-C}_{10}$ alkyl substituted with 0-5 R^5 , $\text{C}_2\text{-C}_{10}$ alkenyl substituted with 0-5 R^5 , aryl substituted with 0-3 R^5 , and heteroaryl substituted with 0-3 R^5 , or R^3 and R^4 may be taken together to form a $\text{C}_5\text{-C}_7$ cyclic alkyl group optionally interrupted with O or NR^6 ;

R^5 is selected from: OH, $C(=O)R^6$, $C(=O)OR^6$, $C(=O)NR^6R^7$, $PO(OR^6)(OR^7)$, and $S(O)_2OR^6$;

R^6 and R^7 are independently selected from: H, C_1 - C_{10} alkyl, and aryl; and

n is 2 or 3;

X is CH_2 ;

R^1 is H;

R^2 is methyl;

R^3 and R^4 are taken together form a 6-membered cyclic piperidine ring.

17. *(currently amended)* The radiopharmaceutical according to claim 16 wherein:

M is a radionuclide selected from: ^{67}Ga , ^{68}Ga , ^{99m}Tc , and ^{111}In ; and

n is 3.

18. *(currently amended)* The radiopharmaceutical according to claim 16 wherein:

M is ^{111}In ; and

n is 3.

19. *currently amended)* The radiopharmaceutical according to claim 16 wherein:

M is ^{111}In ;

n is 3;

X is CH_2 ;

R^1 is H;

R^2 is methyl; and

R^3 and R^4 are taken together form a 6-membered cyclic piperidine ring.

20. *(currently amended)* The radiopharmaceutical according to claim 16 wherein:

M is ^{111}In ;

n is 3;

X is CH_2 ;

R^1 is H;

R^2 is methyl; and

R^3 and R^4 are taken together form a 6-membered cyclic ~~morphine~~
morpholine ring.

Claims 21 to 24 (*cancelled*)

25. (*currently amended*) A method of preparing a radiopharmaceutical of claim 16,
comprising the step of:
reacting a salt of said radionuclide with an excess of said N-substituted 3-
hydroxy-4-pyridinone compound of the formula (I).

Claims 26 to 28 (*cancelled*)